

AD \_\_\_\_\_

GRANT NUMBER DAMD17-94-J-4178

TITLE: Predoctoral Research Training Program in Biopsychosocial Aspects of Breast cancer

PRINCIPAL INVESTIGATOR: Michael A. Andrykowski, Ph.D.

CONTRACTING ORGANIZATION: University of Kentucky  
Lexington, Kentucky 40506-0056

REPORT DATE: August 1998

TYPE OF REPORT: Final

PREPARED FOR: Commander  
U.S. Army Medical Research and Materiel Command  
Fort Detrick, Frederick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for public release;  
distribution unlimited

The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision unless so designated by other documentation.

# REPORT DOCUMENTATION PAGE

*Form Approved  
OMB No. 0704-0188*

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED	
	August 1998	Final (15 Aug 94 - 14 Aug 98)	
4. TITLE AND SUBTITLE  Predoctoral Research Training Program in Biopsychosocial Aspects of Breast Cancer		5. FUNDING NUMBERS  DAMD17-94-J-4178	
6. AUTHOR(S)  Michael A. Andrykowski, Ph.D.			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)  University of Kentucky Lexington, Kentucky 40506-0056		8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)  Commander U.S. Army Medical Research and Materiel Command Fort Detrick, Frederick, Maryland 21702-5012		10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES			
12a. DISTRIBUTION / AVAILABILITY STATEMENT  Approved for public release; distribution unlimited		12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200)  This report summarizes activities and accomplishments during the fourth and final year of a predoctoral research training grant in biopsychosocial breast cancer research. Three trainees were supported during this final year. Research training was supported by a multidisciplinary faculty of six. All training faculty and trainees participated in a monthly breast cancer seminar which allowed for oversight of trainee activities and discussion of ongoing and anticipated breast cancer-related research projects. During the year, trainees participated in a variety of communal and individual breast cancer-related research projects under the supervision of training faculty. During the year, trainees participated in all phases of the research process including protocol development, obtaining approval for human subjects use, data collection, data preparation, entry, and analysis, and manuscript preparation. A total of six trainees were supported during the four years of the training program. These six trainees were primary authors or co-authors on a total of 16 peer-reviewed publications with 9 additional manuscripts under review. The six trainees also delivered 9 oral presentations and 23 poster presentations at professional conferences. The training program was highly successful in providing breast cancer research training for future behavioral science researchers but also stimulated biopsychosocial breast cancer-related research, in general, at the host institution.			
14. SUBJECT TERMS  Breast Cancer, Oncology Research Training, Cancer Control, Psychosocial, Behavioral, Quality of Life		15. NUMBER OF PAGES  19	
		16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT  Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE  Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT  Unclassified	20. LIMITATION OF ABSTRACT  Unlimited

FOREWORD

Opinions, interpretations, conclusions and recommendations are those of the author and are not necessarily endorsed by the U.S. Army.

Where copyrighted material is quoted, permission has been obtained to use such material.

Where material from documents designated for limited distribution is quoted, permission has been obtained to use the material.

Citations of commercial organizations and trade names in this report do not constitute an official Department of Army endorsement or approval of the products or services of these organizations.

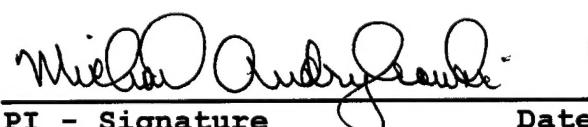
In conducting research using animals, the investigator(s) adhered to the "Guide for the Care and Use of Laboratory Animals," prepared by the Committee on Care and use of Laboratory Animals of the Institute of Laboratory Resources, national Research Council (NIH Publication No. 86-23, Revised 1985).

For the protection of human subjects, the investigator(s) adhered to policies of applicable Federal Law 45 CFR 46.

In conducting research utilizing recombinant DNA technology, the investigator(s) adhered to current guidelines promulgated by the National Institutes of Health.

In the conduct of research utilizing recombinant DNA, the investigator(s) adhered to the NIH Guidelines for Research Involving Recombinant DNA Molecules.

In the conduct of research involving hazardous organisms, the investigator(s) adhered to the CDC-NIH Guide for Biosafety in Microbiological and Biomedical Laboratories.

 7-10-98  
\_\_\_\_\_  
PI - Signature Date

## TABLE OF CONTENTS

Introduction .....	5
Body .....	5
Conclusion. ....	10
References .....	11
List of Personnel Receiving Money From Grant.....	12
Appendix	
Bibliography of publications and meeting abstracts.....	13

## **INTRODUCTION**

High quality research investigating various psychosocial and behavioral aspects of breast cancer has the potential to reduce breast cancer-related mortality as well as improve quality of life following breast cancer. Critical to the performance of high quality research in this area is the recruitment and training of new researchers. This report summarizes activities and accomplishments during the fourth and final year of a four year predoctoral research training program in biopsychosocial aspects of breast cancer. Dates of the training program are August 15, 1994 to August 14, 1998, inclusive. The training program is centered in the Department of Behavioral Science, a basic science department in the University of Kentucky College of Medicine. A training faculty of six is drawn from three academic units within the College of Medicine (Behavioral Science, Medicine-Hematology/Oncology, and Nursing). Funding is provided for support of three predoctoral trainees each year. This support includes a monthly stipend and full payment of all graduate school tuition and fees.

## **BODY**

### **TRAIINEES DURING PROJECT YEAR FOUR**

The fourth year of the research training program began on August 15, 1997. All three predoctoral trainees supported during the third year of the training program were reappointed for the fourth year of the training program. One of the three trainees, Lauren Cunningham, a doctoral student in Psychology, was a reappointee from the second year of the training program as well. Ms. Cunningham thus served the maximum term of three years in the training program. The two other trainees reappointed for a second year of training were Jamie Studts, a doctoral student in Psychology, and Matt Cordova, a doctoral student in Psychology. Mr. Cordova and Mr. Studts then each served a two year term in the training program.

While the three trainees supported during the fourth year of the training program were all reappointees from year three of the training program, they were nevertheless selected following a campus-wide recruitment process conducted during the spring of 1997. The availability of one-year predoctoral research trainee positions focusing upon breast cancer was advertised throughout both the medical center and main campuses at the University of Kentucky. A total of 7 completed applications were received, including applications from the three individuals eventually appointed. These 7 applications spanned a variety of disciplines including Nursing, Sociology, and various subdisciplines of Psychology including counseling, clinical, and social psychology. Following review of the entire pool of applicants, it was the decision of the training faculty to reappoint the three individuals indicated above. While it was deemed less than desirable that all

three trainees be doctoral candidates in Psychology, the three individuals that were reappointed had all demonstrated excellent breast-cancer related research productivity while being supported by the research training grant. Furthermore, each of these three individuals was in the midst of conducting either a breast cancer-related research dissertation (Cordova and Cunningham) or a breast cancer-related Master's thesis (Studts). It was the opinion of the training program faculty that continuation of these ongoing breast-cancer related research projects merited the support of the training program. This support would best be evinced by reappointment to the research training program.

#### **RECENT STATUS OF TRAINEES PREVIOUSLY SUPPORTED BY THE TRAINING PROGRAM**

Shelly Curran, Ph.D., one of the two appointees from the initial year of the training program, completed her doctoral studies and on September 1, 1995 began a clinical internship at the University of Pittsburgh Western Psychiatric Institute under the direction of Dennis Turk, Ph.D.. She completed her dissertation, entitled "Multidimensional Assessment of Fatigue Following Breast Cancer Treatment: A Controlled Comparison" in July of 1996. Upon completion of her clinical internship in September of 1997 Dr. Curran assumed a position as director of the orofacial pain clinic at the University of Minnesota College of Dentistry. Dr. Curran is an author on three peer-reviewed breast cancer-related research publications (one as primary author) and is an author on two additional breast cancer-related manuscripts currently under review (one as primary author).

Robin Lightner, a research trainee during the second year of the training program completed her doctoral studies in Social Psychology in January of 1998. During the 1997-1998 academic year Dr. Lightner served as a Visiting Assistant Professor of Psychology at Northern Kentucky University. She will be assuming an academic position as Assistant Professor of Psychology at Peace College in Morrisville, NC in August, 1998. Dr. Lightner is co-author on two peer-reviewed breast cancer-related research publications and is co-author on one additional breast cancer-related manuscript currently under review.

Janet Carpenter, R.N., Ph.D., a research trainee during both the first and second years of the training program, completed her dissertation entitled "Self Esteem and Well-Being in Women With Breast Cancer and Age-Matched Comparison Women" in June of 1996. Following completion of her doctoral degree, Dr. Carpenter completed a two year NIMH-sponsored postdoctoral research traineeship at the University of Kentucky College of Medicine. During this postdoctoral traineeship Dr. Carpenter was able to continue her research training in biopsychosocial breast cancer research under the direction of Michael Andrykowski, Ph.D. Dr.

Carpenter will be assuming an academic position as Assistant Professor of Nursing at Vanderbilt University in August, 1998. Dr. Carpenter is an author on eight peer-reviewed breast cancer-related research publications (six as primary author) and is an author on five additional breast cancer-related manuscripts currently under review (four as primary author). In addition, Dr. Carpenter has been successful in obtaining external funding for her breast cancer-related research. Recently, Dr. Carpenter was named the 1997-1998 recipient of the prestigious Oncology Nursing Foundation/Hoechst-Marion Roussel Research Fellowship. This one year award provided funding for her research entitled "Circadian Rhythmicity of Hot Flashes Following Treatment For Breast Cancer." Dr. Carpenter also recently was awarded a one year Oncology Nursing Foundation/Sigma Theta Tau International Research Grant to fund her research entitled "Hot Flashes in Breast Cancer Survivors and Matched Comparison Women."

A complete listing of all breast-cancer related publications (published or in press) as well as manuscripts currently under review for which trainees supported by the training program serve as authors is found in the Appendix.

#### **TRAINING PROGRAM ACTIVITIES DURING PROJECT YEAR FOUR**

The research training program consists of six basic components: (1) training in research design, methods, and analysis; (2) supervised experience in breast cancer-related research; (3) training in the responsible (i.e., ethical) conduct of research; (4) enculturation to the breast cancer care environment; (5) tutorial in biopsychosocial research in breast cancer; and (6) formal, graduate level coursework. Each of these components was effectively implemented during the fourth year of the training program.

As part of the training program, all trainees must complete two specific semester-long graduate level courses at the University of Kentucky. One course is entitled "Psychosocial Oncology" and is an upper level survey course examining the content, theory, and methods involved in the study of the behavioral, social, and psychological aspects of cancer. All three of the trainees during project year four had previously completed this course during the Fall semester, 1995. The second required course is entitled "Integrated Research Methods in Medical Behavioral Science." This course is an upper level course emphasizing content and application of research methods drawn from a variety of behavioral and social science disciplines (e.g., anthropology, sociology, psychology, epidemiology) to the study of medical and health-related research questions. One of the trainees completed this course during the spring semester of 1996 (Cordova), one completed the course during the spring semester 1995 (Studts) and one completed this course during the spring semester, 1998 (Cunningham). Thus all three trainees supported during 1997-1998 have completed the formal required coursework associated with the research training program.

A monthly meeting of the training program faculty and predoctoral trainees continued to be held during the fourth year of the training program. Other faculty, graduate students, and postdoctoral fellows interested in biopsychosocial breast cancer research were also invited to attend on an ad hoc basis. This meeting lasted for roughly 75-90 minutes each month. This meeting provided: (a) an opportunity for all members of the training program to keep abreast of the research activities of the three trainees; (b) a forum for training faculty and trainees to discuss recent and ongoing research in biopsychosocial aspects of breast cancer; and (c) an opportunity for faculty and trainees to discuss ideas leading to the development of new breast-cancer related research projects at the University of Kentucky.

During the fourth year of the training program, all three predoctoral research trainees were actively involved in one or more "communal" research projects under the supervision of training program faculty. These research projects included: (a) an investigation of the incidence, severity, and predictors of post-mastectomy pain syndrome following breast cancer treatment; (b) an investigation of symptoms of post-traumatic stress disorder (PTSD) in women previously treated for early-stage breast cancer; (c) an investigation of the incidence, severity, and predictors of menopausal symptoms following treatment for breast cancer; (d) a longitudinal investigation of the psychological and behavioral impact of undergoing a benign breast biopsy or fine needle aspiration for diagnostic purposes, and (e) a laboratory study of emotional expression in women with breast cancer compared to healthy women without a history of breast cancer. Trainee involvement in these communal research projects ranged across all phases of the research enterprise including research protocol development, preparation of requests for approval for use of human subjects, data collection, data preparation, entry, and analysis, and finally manuscript preparation.

In addition to the communal research projects cited above, each of the trainees was responsible for the development and implementation of their own individual research project. This individual research project serves to satisfy the research requirement for the Master's (Studts) or Doctoral (Cunningham, Cordova) degree. In each instance, the individual trainee assumed full responsibility for the conduct of all phases of the research. All individual research projects were conducted under the supervision of training program faculty with one or more members of the training program faculty serving as members of the student's thesis or dissertation committee. During the fourth year of the training program, Jamie Studts completed data collection for his Master's thesis research entitled "A Psychoeducational Group Intervention for Persons Interested in Learning About Hereditary Breast and Ovarian Cancer and Presymptomatic Genetic Testing." Lauren Cunningham completed data collection for her doctoral dissertation entitled "Emotional Expression and Psychological Adjustment Following Breast Cancer."

Finally, Matt Cordova completed data collection for his doctoral dissertation entitled "Cognitive Processing and Adjustment to Breast Cancer."

Each of the communal research projects "a" through "e" listed above utilized women treated for breast cancer or undergoing breast diagnostic procedures at the Multidisciplinary Breast Care Center at the University of Kentucky Chandler Medical Center. In order to identify and enroll study eligible women, all of the trainees were required to work closely with the breast surgeons and medical oncologists caring for these women at the Breast Care Center. This has resulted in trainees spending considerable time, typically 4-5 hours per week, in the Breast Care Center. This has allowed them to become very familiar with the milieu and culture in which breast cancer treatment is embedded.

As a result of their participation in breast cancer-related research, each of the three trainees supported during the fourth year of the training program has had the opportunity to earn authorship status on several manuscripts which have stemmed directly from research activities supported by the training program. Mr. Cordova is an author on five peer-reviewed breast cancer-related research publications (one as primary author) and is an author on four additional breast cancer-related manuscripts currently under review (two as primary author). Mr. Studts is a co-author on seven peer-reviewed breast cancer-related research publications and is a co-author on three additional breast cancer-related manuscripts currently under review. Finally, Ms. Cunningham is an author on four peer-reviewed breast cancer-related research publications (one as primary author) and is a co-author on two additional breast cancer-related manuscripts currently under review. A complete listing of all breast-cancer related publications (published or in press) as well as manuscripts currently under review for which trainees supported by the training program serve as authors is found in the Appendix.

During the fourth year of the training program, each of the three trainees attended the annual meeting of the Society of Behavioral Medicine, held in New Orleans in March of 1998. Partial support for travel expenses to attend this conference was furnished by the training grant. Each of the trainees presented a poster based upon research work supported by the training grant. (A listing of all breast-cancer related platform or poster presentations for all trainees supported by the training grant is found in the Appendix.) In addition, all three trainees attended a conference sponsored by the American Psychological Association entitled "Psychosocial Interventions for Cancer Patients." This conference was sponsored by the University of Pittsburgh Cancer Institute and was held in Pittsburgh in October, 1997. Partial support for travel expenses to attend this conference was furnished by the training grant. Matt Cordova was also selected to attend the DOD-sponsored "Era of Hope" convention held in Washington, D.C in November, 1997. At

this conference, he delivered a platform presentation based upon his research examining PTSD following the diagnosis and treatment of breast cancer. Support for travel expenses for Matt Cordova to attend this conference was furnished by the DOD Breast Cancer Research Program.

#### **Changes in Training Program Faculty During Project Year Four**

Lee Blonder, Ph.D. replaced Jim McCubbin, Ph.D. as a member of the training program faculty for the fourth and final year of the training program. This change was necessitated by the move of Dr. McCubbin to Clemson University where he assumed the position of chair of the Department of Psychology. Dr. Blonder is an Associate Professor of Anthropology, Behavioral Science, and Aging at the University of Kentucky College of Medicine. Her specific research interests focus upon neurocognitive processes, communication, and emotional expression. Dr. Blonder's addition to the training program faculty added significant expertise in both Anthropology and Aging. As director of the Communication and Emotion Research Laboratory at the University of Kentucky, she has been instrumental in the design of several research projects examining communication and emotional expression in breast cancer patients.

Pathik Wadhwa, M.D., Ph.D., served as an ad hoc member of the training faculty during the fourth year of the training program. Dr. Wadhwa is an Assistant Professor of Behavioral Science. His doctoral training is in Social Ecology. His specific research interests include psychophysiology and psychophysiological research methods. He replaced Dr. McCubbin as director the Department of Behavioral Science's Psychophysiology Core Laboratory. While not supported by the training grant, Dr. Wadhwa's participation in the monthly meetings of training program faculty and trainees added valuable expertise in the interface of biology and behavior in breast cancer and also added additional medical expertise to the training program. Dr. Wadhwa was also instrumental in developing a project examining psychophysiological stress reactivity in women with breast cancer.

#### **CONCLUSION**

Each of the six components of the research training program were effectively implemented during the fourth year of the training program. All three trainees received supervised, "hands on" experience in all aspects of conducting biopsychosocial breast cancer-related research. In addition, all three trainees had the opportunity to participate in a variety of specific research projects, thus increasing the breadth of their experience. Finally, all three trainees had the opportunity for extensive interaction with both patients and health providers in the breast cancer care setting.

Overall, the predoctoral research training program in biopsychosocial breast cancer has been highly successful as a vehicle for providing multidisciplinary research training for young scholars from the behavioral sciences. A total of six different individuals have been supported during the four years of the training program. Collectively, these six individuals have been involved in the production of 16 peer-reviewed, breast-cancer related publications and an additional 10 manuscripts presently under editorial review. Additionally, the six individuals supported by the training program have delivered a total of 9 platform presentations at various professional conferences along with a total of 23 poster presentations. Three published abstracts have also resulted from the efforts of the six predoctoral trainees supported by the training grant. As further testimony to the success of the training program, one of the individuals supported by the training program (Dr. Carpenter) has already succeeded in obtaining peer-reviewed external funding for biopsychosocial breast cancer research. In fact, she has procured funding from the Oncology Nursing Foundation for two separate projects examining hot flashes in breast cancer survivors.

In addition to providing excellent multidisciplinary research training, the training program has served as an effective catalyst for developing biopsychosocial breast cancer research at the University of Kentucky Medical Center. The training program has provided a forum for bringing a multidisciplinary group of investigators together to share their expertise and research skills in the service of developing research opportunities for the predoctoral trainees supported by the training program. Many of these faculty investigators have not heretofore applied their skills and knowledge in the service of breast cancer research. In bringing these senior investigators together, more than several research protocols have been developed which have represented unique applications of behavioral science theory and methods to the study of significant problems in breast cancer. As a result, several breast cancer-related research grant applications have been prepared or are under preparation.

#### **REFERENCES**

None.

**LIST OF PERSONNEL RECEIVING MONEY FROM GRANT**

Michael Andrykowski, Ph.D.	(Years 1-4)
Rita Munn, M.D.	(Years 1-4)
Norma Christman, R.N., Ph.D.	(Years 1-4)
Tom Kelly, Ph.D.	(Years 1-4)
John Wilson, Ph.D.	(Years 1-4)
Jim McCubbin, Ph.D.	(Years 1-3)
Lee Blonder, Ph.D.	(Year 4)

**APPENDIX: BIBLIOGRAPHY OF BREAST-CANCER RELATED PUBLICATIONS,  
MANUSCRIPTS, PUBLISHED ABSTRACTS, PLATFORM PRESENTATIONS,  
AND POSTER PRESENTATIONS PRODUCED BY TRAINEES SUPPORTED BY  
TRAINING PROGRAM.**

**PEER-REVIEWED PUBLICATIONS (total of 16)**

**Note:** **bolded, italicized name** indicates research trainee supported by training grant

Andrykowski, M.A., **Cordova, M.J.**, **Studts, J.L.**, & Miller, T.W. (1998). Diagnosis of posttraumatic stress disorder following treatment for breast cancer. Journal of Consulting and Clinical Psychology, **66**, 586-590.

**Carpenter, J.S.**, Andrykowski, M.A., **Cordova, M.J.**, **Cunningham, L.L.C.**, **Studts, J.L.** (in press). Do participants' reports of symptom prevalence or severity vary by interviewer gender? Nursing Research.

**Carpenter, J.S.**, Andrykowski, M.A., Wilson, J., Hall, L.A., Rayens, M.K., Sachs, B., & **Cunningham, L.L.C.** (in press). Psychometrics for two short forms of the Center for Epidemiologic Studies-Depression Scale (CES-D). Issues in Mental Health Nursing.

**Carpenter, J.S.**, & Andrykowski, M.A. (in press). Psychometric evaluation of the Pittsburgh Sleep Quality Index. Journal of Psychosomatic Research.

**Cunningham, L.C.**, Andrykowski, M.A., Wilson, J.F., McGrath, P.C., Sloan. D.A., & Kenady, D.E. (in press). Physical symptoms, distress, and breast cancer risk perceptions in women with benign breast problems. Health Psychology.

Andrykowski, M.A., **Curran, S.L.**, & **Lightner, R.** (1998). Off-Treatment fatigue in breast cancer survivors: A controlled comparison. Journal of Behavioral Medicine, **21**, 1-18.

**Carpenter, J.S.** (1998). Informing participants about the benefits of descriptive research. Nursing Research, **47**, 63-64.

Andrykowski, M.A., & **Cordova, M.J.** (1998). Factors associated with reports of PTSD symptoms following breast cancer treatment: Test of the Andersen model. Journal of Traumatic Stress, **11**, 189-203.

**Carpenter, J.S.**, Andrykowski, M.A., **Cordova, M.**, **Cunningham, L.**, **Studts, J.**, McGrath, P., Kenady, D., Sloan, D., & Munn, R. (1998). Hot flashes in postmenopausal women treated for breast cancer: Prevalence, severity, correlates, management, and relation to quality of life. Cancer, **82**, 1682-1691.

Andrykowski, M.A., *Lightner, R.*, *Studts, J.L.*, & Munn, R.K. (1997). Hereditary risk notification and testing: How interested is the general population? *Journal of Clinical Oncology*, *15*, 2139-2148.

*Carpenter, J.S.* (1997). Self-esteem and well-being among women with breast cancer and age-matched comparison women. *Journal of Psychosocial Oncology*, *15* (3/4), 59-80.

Andrykowski, M.A., *Carpenter, J.S.*, Greiner, C.B., Altmaier, E.M., Gingrich, T.G., Antin, J.H., Gingrich, R., *Cordova, M.J.*, & Henslee-Downey, P.J. (1997). Energy level and sleep quality following bone marrow transplantation. *Bone Marrow Transplantation*, *20*, 669-679.

Andrykowski, M.A., Munn, R.K., & *Studts, J.L.* (1996). Interest in learning of a personal genetic predisposition for cancer: Results of a general population survey. *Preventive Medicine*, *25*, 527-536.

Andrykowski, M.A., *Curran, S.L.*, *Studts, J.L.*, *Cunningham, L.*, *Carpenter, J.S.*, McGrath, P., Sloan, D., & Kenady, D. (1996). Quality of life in women with breast cancer and benign breast problems: A controlled comparison. *Journal of Clinical Epidemiology*, *49*, 827-834.

*Cordova, M.J.*, Andrykowski, M.A., Kenady, D.E., McGrath, P.C., Sloan, D.A., & Redd, W.H. (1995). Frequency and correlates of PTSD-like symptoms following treatment for breast cancer. *Journal of Consulting and Clinical Psychology*, *63*, 981-986.

*Curran, S.L.*, Andrykowski, M.A., & *Studts, J.L.* (1995). Short Form of the Profile of Mood States (POMS-SF): Psychometric information. *Psychological Assessment*, *7*, 80-83.

#### **MANUSCRIPTS SUBMITTED FOR PUBLICATION IN PEER-REVIEWED JOURNALS (total of 10)**

*Cordova, M.J.*, Andrykowski, M.A., *Studts, J.S.*, Hann, D.M., & Jacobsen, P.B. (1998) Symptom structure of PTSD following breast cancer. Manuscript submitted for publication. (Journal of Traumatic Stress)

Andrykowski, M.A., *Cordova, M.J.*, McGrath, P.C., Sloan, D.A., & Kenady, D.E. (1998). Stability and change in PTSD-like symptoms following breast cancer treatment: A one year follow-up. Manuscript submitted for publication. (Journal of Behavioral Medicine)

*Curran, S.L.*, & Andrykowski, M.A. (1998). Diurnal patterns of fatigue, mood, and pain following breast cancer treatment. Manuscript submitted for publication. (Health Psychology)

Andrykowski, M.A., Curran, S.L., Studts, J.L., Cunningham, L., Carpenter, J.S., McGrath, P.C., Sloan, D.A., & Kenady, D.E. (1998). Rheumatologic symptoms following breast cancer treatment: A controlled comparison. Manuscript submitted for publication. (Journal of Pain and Symptom Management)

Valentino, J., Andrykowski, M.A., Lightner, R., & Wood, T. (1998). Population attitudes toward oncology clinical trials. Manuscript submitted for publication. (Journal of the Kentucky Medical Association)

Cordova, M.J., & Andrykowski, M.A. (1998). Psychosocial sequelae of cancer: Toward a transition paradigm. Manuscript submitted for publication. (Social Science and Medicine)

Carpenter, J.S., Andrykowski, M.A., Sloan, P., Cunningham, L.L.C., Cordova, M.J., Studts, J.L., McGrath, P.C., Sloan, D., & Kenady, D.E. (1998). Post-mastectomy pain: Prevalence, characteristics, correlates, and relation to quality of life. Manuscript submitted for publication. (Clinical Epidemiology).

Carpenter, J.S., Sloan, P., Andrykowski, M.A., McGrath, P., Sloan, D., Rexford, R., & Kenady, D. (1998). Risk factors for post-mastectomy pain in breast cancer survivors. Manuscript submitted for publication (Pain).

Carpenter, J.S., Brockopp, D.Y., & Andrykowski, M.A. (1998). Self transformation as a factor in the self-esteem and well-being of breast cancer survivors. Manuscript submitted for publication. (Journal of Advanced Nursing).

Carpenter, J.S., & Andrykowski, M.A. (1998). Menopausal symptoms in breast cancer survivors. Manuscript submitted for publication (Oncology Nursing Forum).

#### PUBLISHED ABSTRACTS (total of 3)

Carpenter, J.S., Sloan, P., & Andrykowski, M.A. (in press). Barriers to pain management research [abstract]. Images: Journal of Nursing Scholarship.

Cordova, M.J., Studts, J.L., & Andrykowski, M.A. (1996). Prediction of PTSD symptoms after treatment for breast cancer: Test of the Andersen model [abstract]. Psychosomatic Medicine, 58, 66.

Andrykowski, M.A., Cordova, M.J., & Redd, W.H. (1995). Prevalence and predictors of PTSD-like symptoms following treatment for breast cancer [abstract]. Psychosomatic Medicine, 57, 69.

## **PLATFORM PRESENTATIONS AT PROFESSIONAL CONFERENCES (total of 9)**

**Cordova, M.J., & Andrykowski, M.A.** (1998, March). Posttraumatic stress disorder (PTSD) following breast cancer. Paper presented at the meeting of the Society of Behavioral Medicine, New Orleans, LA.

**Carpenter, J.S., Andrykowski, M.A., Cordova, M., Cunningham, L., Studts, J., McGrath, P., Kenady, D., Sloan, D.** (1998, February). Hot flashes following breast cancer treatment: Prevalence, severity, predictors, and management. Paper presented at the 12th annual meeting of the Southern Nursing Research Society, Fort Worth, TX.

**Cordova, M.J.** (1997, November). Posttraumatic stress disorder (PTSD) following breast cancer. Paper presented at the meeting of the Department of Defense Breast Cancer Research Program, Washington, D.C.

**Carpenter, J.S.** (1997, May). Transforming self and spirit following diagnosis and treatment for breast cancer. Paper presented at the 22nd Annual Congress of the Oncology Nursing Society, New Orleans, LA.

**Carpenter, J.S.** (1997, April). Applying Cantril's methodology to study self-esteem: Psychometrics of the self-anchoring self-esteem scale. Paper presented at the 11th Annual Conference of the Southern Nursing Research Society, Norfolk, VA.

**Carpenter, J.S.** (1997, January). Self-Esteem and well-being among women with breast cancer and age-matched comparison women. Paper presented at the 4th National Conference on Cancer Nursing Research, Panama City, FL.

**Cunningham, L., & Andrykowski, M.A.** (1996, March). Psychological distress and perceived risk in women with fibrocystic breast disease. Paper presented at the meeting of the Fourth International Congress of Behavioral Medicine, Washington, DC.

**Curran, S.L., & Andrykowski, M.A.** (1996, March). A controlled multidimensional assessment of fatigue following breast cancer treatment. Paper presented at the meeting of the Fourth International Congress of Behavioral Medicine, Washington, DC.

**Lightner, R.M., Langer, S.L., & Andrykowski, M.A.** (1997, May). I feel your pain: Emotional experience and the facets of empathy. Paper presented at the meeting of the Midwestern Psychological Association, Chicago, IL.

## **POSTER PRESENTATIONS AT PROFESSIONAL CONFERENCES (total of 23)**

**Carpenter, J.S.** (1998, May). Hot flashes in postmenopausal women treated for breast cancer. Poster presented at the 23rd Annual Congress of the Oncology Nursing Society. San Francisco, CA

**Cordova, M.J.**, Andrykowski, M.A., Phillips, G.L., & Jacobsen, P.B. (1998, March). Psychosocial concerns following bone marrow transplantation. Poster presented at the meeting of the Society of Behavioral Medicine, New Orleans, LA.

**Cunningham, L.C.**, **Carpenter, J.S.**, & Andrykowski, M.A. (1998, March). Reactivity of self reports of distress in cancer risk research. Poster presented at the meeting of the Society of Behavioral Medicine, New Orleans, LA.

**Carpenter, J.S.**, & Andrykowski, M.A. (1998, March). Correlates of hot flash prevalence and severity in postmenopausal breast cancer survivors. Poster presented at the meeting of the Society of Behavioral Medicine, New Orleans, LA.

**Studts, J.L.**, Munn, R., Gallion, H., Drungle, S., & Andrykowski, M.A. (1998, March). Psychoeducational seminars for persons interested in hereditary breast and ovarian cancer testing: A three month follow-up. Poster presented at the meeting of the Society of Behavioral Medicine, New Orleans, LA.

**Cunningham, L.C.**, & Andrykowski, M.A. (1998, March). Factors influencing worry about breast cancer in women with benign breast problems. Poster presented at the meeting of the Society of Behavioral Medicine, New Orleans, LA.

**Carpenter, J.S.**, Andrykowski, M.A., Hall, L., Rayens, M.K., Sachs, B., Wilson, J., & Cunningham, L.C. (1998, February). Psychometric properties of two short forms of the Center for Epidemiologic Studies Depression Scale (CESD). Poster presented at the meeting of the Southern Nursing Research Society, Fort Worth, TX.

**Carpenter, J.S.**, Sloan, P., & Andrykowski, M.A. (1997, April). Post mastectomy pain syndrom in women treated for breast cancer. Poster presented at the meeting of the Society of Behavioral Medicine, San Francisco, CA.

**Carpenter, J.S.** (1997, April). Transforming self and spirit following diagnosis and treatment for breast cancer. Poster presented at the 11th Annual Conference of the Southern Nursing Society, Norfolk, VA.

**Carpenter, J.S.**, & Andrykowski, M.A. (1997, April). Psychometric evaluation of the Pittsburgh Sleep Quality Index. Poster presented at the meeting of the Society of Behavioral Medicine, San Francisco, CA.

*Studts, J.L.*, Munn, R.K., Gallion, H.H., & Andrykowski, M.A. (1997, April). A Psychoeducational group intervention for persons interested in BRAC1 testing: Preliminary results. Poster presented at the meeting of the Society of Behavioral Medicine, San Francisco, CA.

*Cordova, M.J.*, Andrykowski, M.A., & Jacobsen, P.B. (1997, April). Symptom structure of PTSD following breast cancer. Poster presented at the meeting of the Society of Behavioral Medicine, San Francisco, CA.

*Cunningham, L.C.*, & Andrykowski, M.A. (1997, April). Symptom reporting and psychological correlates in women with fibrocystic breast disease. Poster presented at the meeting of the Society of Behavioral Medicine, San Francisco, CA.

*Carpenter, J.S.*, Andrykowski, M.A., & *Cunningham, L.* (1997, April). Hot flashes in women post treatment for breast cancer. Poster presented at the meeting of the Society of Behavioral Medicine, San Francisco, CA.

*Carpenter, J.S.* (1996, August). Self-esteem and well-being among women with breast cancer and age-matched comparison women. Poster presented at the 9th International Conference on Cancer Nursing, Brighton, Sussex, United Kingdom.

*Carpenter, J.S.* (1996, May). Self-esteem and well-being among women with breast cancer and age-matched comparison women. Poster presented at the 21st Annual Congress of the Oncology Nursing Society, Philadelphia, PA.

*Cordova, M.J.*, *Studts, J.L.*, & Andrykowski, M.A. (1996, March). Prediction of PTSD symptoms after treatment for breast cancer: Test of the Andersen model. Poster presented at the meeting of the American Psychosomatic Society, Williamsburg, VA.

*Cordova, M.J.*, *Studts, J.S.*, & Andrykowski, M.A. (1996, March). PTSD-like symptoms following treatment for breast cancer: A one-year follow-up. Poster presented at the meeting of the Society of Behavioral Medicine, Washington, DC.

*Studts, J.L.*, *Cordova, M.J.*, & Andrykowski, M.A. (1996, March). Diagnosis of PTSD in women following treatment for breast cancer. Poster presented at the meeting of the Society of Behavioral Medicine, Washington, DC.

*Carpenter, J.S.* (1996, February). Self-esteem and well-being among women with breast cancer and age-matched comparison women. Poster presented at the 10th Annual Congress of the Southern Nursing Research Society, Miami, FL.

*Cordova, M.J.*, Andrykowski, M.A., & Redd, W.H. (1995, March). Prevalence and predictors of PTSD-like symptoms following treatment for breast cancer. Poster presented at the meeting of the Society of Behavioral Medicine, San Diego, CA.

*Curran, S.L.*, *Studts, J.L.*, *Cunningham, L.C.*, & Andrykowski, M.A. (1995, March). Fatigue assessment: A comparison of five measures. Poster presented at the meeting of the Society of Behavioral Medicine, San Diego, CA.

Andrykowski, M.A., *Cordova, M.J.*, & Redd, W.H. (1995, March). Prevalence and predictors of PTSD-like symptoms following treatment for breast cancer. Poster presented at the meeting of the American Psychosomatic Society, New Orleans, LA.